

TRAFFIC IMPACT STUDY

For

**QOZ Prospect Property Urban Renewal, LLC
Proposed Residential Development**


Property Located at:


27-31, 33-39, & 41 Prospect Avenue
Block 455 – Lot 1.01
City of Bayonne, Hudson County, NJ

Prepared by:



1904 Main Street | 245 Main Street, Suite 110
Lake Como, NJ 07719 | Chester, NJ 07930
(732) 681-0760


Joseph J. Staigar, PE, PP
NJ PE License #30024


Craig W. Peregoy, PE
NJ PE License #45880

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2962-99-001T

INTRODUCTION

It is proposed to construct a 6 story building with eighty five (85) residential units (The Project) on a parcel of land located in the northwest quadrant of the intersection of Prospect Avenue with 21st Street, in the City of Bayonne, Hudson County, New Jersey as shown on Figure 1 contained in Appendix A. The site is designated as Block 455 – Lot 1.01 on the City Tax Maps. Parking will be provided via eighty-nine (89) parking stalls on the ground level of the building, with the majority of the spaces being accessible via mechanical lifts. Access to the proposed site will be provided via one (1) full movement driveway along Prospect Avenue.

The property is currently developed with a 1 story manufacturing facility and outdoor storage area known as “Export Meat Packers Inc.”. Access to the site is currently provided via two (2) depressed curb ramps along Prospect Avenue.

Dynamic Traffic, LLC has been retained to prepare this study to assess the traffic impact associated with the construction of The Project on the adjacent roadway network. This study documents the methodology, analyses, findings and conclusions of our study and includes:

- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, traffic control, and location and geometry of existing driveways and intersections.
- Existing traffic data was collected via manual turning movement (MTM) counts during the weekday AM and weekday PM peak periods at the intersections of Prospect Avenue with 22nd Street and Prospect Avenue with 21st Street.
- Projections of traffic to be generated by the proposed development were prepared utilizing trip generation data as published by the Institute of Transportation Engineers. Site traffic was then assigned to the adjacent street system based upon the anticipated directional distribution.
- Capacity analyses were conducted for the Existing, No Build and Build conditions for the study intersections and the site driveways.
- The proposed site driveway was inspected for adequacy of geometric design, spacing and/or alignment to streets and driveways on the opposite side of the street, relationship to other driveways adjacent to the development, and conformance with accepted design standards.

EXISTING CONDITIONS

A review of the existing roadway conditions near the subject site was conducted to provide the basis for assessing the traffic impact of the development. This included field investigations of the surrounding roadways and intersections, collection of traffic volume data, and extensive analyses.

Existing Roadway Conditions

The following are descriptions of the roadways in the study area:

Prospect Avenue is a local roadway under the jurisdiction of the City of Bayonne. In the vicinity of the site the speed limit is not posted and the roadway provides one travel lane in each direction with a general north/south orientation. On-street parking is permitted along both sides of the roadway while curb and sidewalk is provided along both sides of the roadway. Prospect Avenue provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along Prospect Avenue in the vicinity of The Project are a mix of commercial and residential.

22nd Street is an urban major collector roadway under the jurisdiction of the City of Bayonne. In the vicinity of the site the posted speed limit is 25 MPH and the roadway provides one travel lane for one-way travel in the westbound direction. On-street parking is permitted along portions of both sides of the roadway while curb and sidewalk is provided along both sides of the roadway. 22nd Street provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along 22nd Street in the vicinity of The Project are primarily residential.

21st Street is an urban major collector roadway under the jurisdiction of the City of Bayonne. In the vicinity of the site the speed limit is not posted and the roadway provides one travel lane for one-way travel in the eastbound direction. On-street parking is permitted along portions of both sides of the roadway while curb and sidewalk is provided along both sides of the roadway. 21st Street provides a straight horizontal alignment and a relatively flat vertical alignment. The land uses along 21st Street in the vicinity of The Project are a mix of commercial and residential.

Existing Traffic Volumes

Manual turning movement (MTM) counts were conducted on Wednesday, March 28, 2018 between 7:00 AM and 9:00 AM and between 4:30 PM and 6:30 PM at the intersections of Prospect Avenue with 21st Street and Prospect Avenue with 22nd Street. Review of the collected traffic data reveals that the weekday morning peak street hour (PSH) of the network occurs between 7:45–8:45 AM and the Evening PSH occurs between 5:30–6:30 PM. Figure 2 in Appendix A shows the existing peak hour traffic volumes at the study intersection. All MTM counts are contained in Appendix B.

Existing Capacity Analysis

The methodology utilized in the capacity analyses is described in the *Highway Capacity Manual 2010*, published by the Transportation Research Board. In general, the term Level of Service (LOS) is used to provide a “qualitative” evaluation of capacity based upon certain “quantitative” calculations related to empirical values, such as traffic volume and intersection control.

At the signalized intersections, factors that affect the various approach capacities include width of approach, number of lanes, traffic signal “green time”, turning percentages, truck volumes, etc. However, delays cannot be related to capacity in a simple one-to-one fashion. For example, it is possible to have delays in the Level of Service “F” range without exceeding roadway capacity. Substantial delays can exist without exceeding capacity if one or more of the following conditions exist: long traffic signal cycle lengths; a particular traffic movement experiences a long red time; or progressive movement for a particular lane group is poor. Table I describes the Level of Service ranges for signalized intersections.

An unsignalized (STOP sign controlled) driveway or side street along a through route is seldom critical from an overall capacity standpoint, however, it may be of great significance to the capacity of the minor cross-route, and it may influence the quality of traffic flow on both. When analyzing an unsignalized intersection, it is assumed that both the major street through and right turn movements are unimpeded and have the right-of-way over all side street traffic and left turns from the major street. All other turning movements in the intersection cross, merge with, or are otherwise impeded by major street movements. Traffic delays at unsignalized intersections are determined by sequentially processing these impeded movements. Table II describes the Level of Service ranges for unsignalized (stop controlled) intersections.

**Table I
Level of Service Criteria
for Signalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
A	0.0 to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	greater than 80.0

**Table II
Level of Service Criteria
for Unsignalized Intersections**

Level of Service	Average Control Delay (seconds per vehicle)
a	0.0 to 10.0
b	10.1 to 15.0
c	15.1 to 25.0
d	25.1 to 35.0
e	35.1 to 50.0
f	greater than 50.0

It should be noted that the analyses within the *Highway Capacity Manual* assume a random arrival for all the movements, which may not be the case if an adjacent traffic signal is present that platoons vehicles.

All capacity analyses were performed utilizing the Synchro software package (Synchro 10). Table III summarizes the existing Levels of Service (LOS) and delays. All capacity analysis calculation worksheets are contained in Appendix C.

**Table III
Existing Levels of Service**

Intersection	Direction/ Movement		AM PSH	PM PSH
Prospect Avenue and 22 nd Street	WB	LTR	A (10)	B (12)
	NB	LT	C (27)	C (27)
	SB	TR	B (11)	A (10)
	Overall		B (14)	B (13)
Prospect Avenue and 21 st Street	EB	LTR	b (11)	b (11)
	NB	TR	a (8)	a (8)
	SB	LT	a (9)	a (8)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)
a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

The following are discussions pertaining to each of the existing intersections analyzed. It should be noted that existing peak hour factors were used in the existing analysis.

Prospect Avenue and 22nd Street

Prospect Avenue intersects 22nd Street to form a four-leg intersection controlled by a two-phase traffic signal with a 90-second cycle length. The westbound approach of 22nd Street provides a shared left turn/through/right turn lane. The northbound and southbound approaches of Prospect Avenue provide a shared left turn/through lane and a shared through/right turn lane, respectively.

A review of the existing analysis reveals that the intersection operates at overall favorable level of service “B” during the AM and PM analyzed peak periods. See Table III for the individual movement levels of service and delays.

Prospect Avenue and 21st Street

Prospect Avenue intersects 21st Street to form a four-leg unsignalized intersection with all approaches under stop control. The eastbound approach of 21st Street provides a shared left turn/through/right turn lane. The northbound and southbound approaches of Prospect Avenue provide a shared through/right turn lane and a shared left turn/through lane, respectively.

A review of the existing analysis reveals that the individual intersection movements operate at favorable level of service “B” or better during the AM and PM analyzed peak periods. See Table III for the individual movement levels of service and delays.

FUTURE CONDITIONS

Traffic volumes and operational analyses were developed for both the Future No Build and Build conditions. The no build conditions provide a baseline for assessing the impact of site development traffic on the roadway system. The process of developing the No Build and Build traffic volumes and the subsequent analyses is outlined below.

Regardless of whether the subject site is developed or not, traffic volumes on the surrounding roadways are expected to increase as a result of developments throughout the region. A growth rate for roadways within the study area was obtained from the NJDOT Annual Background Growth Rate Table, which indicates a growth rate of 1% per year.

Additionally, it should be noted that there are numerous developments in the vicinity of the site that have been approved but not yet constructed that are identified as a potential significant traffic generators, shown below. It was assumed that the background growth rate was adequate to account for the traffic associated with all developments not listed hereafter.

- A mixed-use development consisting of 180 residential units and 3,000 SF of retail space located along the east side of Avenue F between East 23rd Street and East 24th Street, has been approved. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated November 2, 2016 prepared by this firm.
- A residential development consisting of 44 units located at 117-121 Prospect Avenue, has not been approved however it was conservatively assumed that it will be approved in the future. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated November 14, 2018 prepared by this firm.
- A residential development known as “Skye Lofts North” consisting of 100 residential units located at 252-268 Avenue E, has been approved. Projections of the associated traffic volumes were developed utilizing LUC 221 – Multifamily Housing (Mid-Rise).
- A mixed-use development consisting of 72 residential units and 7,676 SF of retail space located at 477 and 479-481 Broadway, has been approved. Projections of the associated traffic volumes were gathered from the *Traffic Impact Study*, dated May 25, 2017 prepared by this firm.

Future No Build traffic volumes were developed by applying the background growth rate of 1% per year for two (2) years to the study area roadways existing traffic volumes and by adding the site generated traffic associated with the adjacent developments. Figure 3, in Appendix A of this report, shows the Adjacent Development traffic volumes at the study intersections and Figure 4 shows the Future No Build traffic volumes.

Traffic Generation

Projections of future traffic volumes were developed utilizing data as published in the Institute of Transportation Engineers (ITE) publication *Trip Generation, 10th Edition* for Land Use Code (LUC) 221 – Multifamily Housing (Mid-Rise). Table IV summarizes the projected trips generated by the proposed development utilizing the ITE data.

Table IV
Trip Generation

Land Use	AM PSH			PM PSH		
	In	Out	Total	In	Out	Total
85 Unit Residential Development	8	21	29	23	15	38

It should also be noted that within a half mile of the site there is access to New Jersey Transit bus lines 10, 81, 119 and 120. Additionally within ¼ mile of the site there is access to the 22nd Street HBLR Station. However, no adjustments are made to the ITE trip rate data to account for the likely high utilization of mass transit for daily commutation purposes for the future tenants of the proposed building. This allows for a conservative projection of a “worst case” scenario.

Once the magnitude of traffic to be generated by the site is known, it is necessary to assign that traffic to the adjacent street system. The distribution of site traffic to the surrounding roadways is based on the location of primary arterial roadways, major signalized intersections, and existing traffic patterns. Located in Appendix A, Figure 5 illustrates the site generated traffic volumes. The site generated volumes were added to the Future No Build traffic volumes to generate the Future Build traffic volumes, which are shown in Figure 6.

Future Capacity Analysis

Operational conditions at the study intersections were analyzed under the No Build and Build conditions and are summarized in Table V below.

Table V
Future Levels of Service

Intersection	Direction/ Movement		AM PSH		PM PSH	
			No Build	Build	No Build	Build
Prospect Avenue and 22 nd Street	WB	LTR	A (10)	A (10)	B (12)	B (13)
	NB	LT	C (27)	C (27)	C (27)	C (27)
	SB	TR	B (11)	B (12)	A (10)	B (10)
	Overall		B (14)	B (14)	B (14)	B (14)
Prospect Avenue and 21 st Street	EB	LTR	b (11)	b (12)	b (12)	b (13)
	NB	TR	a (8)	a (8)	a (8)	a (8)
	SB	LT	a (9)	a (9)	a (9)	a (9)
Prospect Avenue and Southerly Site Driveway	EB	LR	-	a (9)	-	a (9)
	NB	LT	-	a (7)	-	a (7)

A (#) - Signalized Intersection Level of Service (seconds of delay per vehicle)
a (#) - Unsignalized Intersection Level of Service (seconds of delay per vehicle)

Prospect Avenue and 22nd Street

With the addition of the site traffic the intersection will continue to operate at overall level of service “B” during the AM and PM peak hours, maintaining the no build level of service. See Table V for the individual movement levels of service and delays.

Prospect Avenue and 21st Street

With the addition of the site traffic the individual intersection movements will continue to operate at level of service “B” or better during the AM and PM peak hours, maintaining the no build level of service. See Table V for the individual movement levels of service and delays.

Prospect Avenue and the Site Driveway

The driveway is proposed to intersect Prospect Avenue to form a three-leg unsignalized intersection with the site driveway under stop control. The northbound and southbound approaches of Prospect Avenue will provide a shared left turn/through lane and a shared through/right turn lane, respectively. The eastbound approach of the site driveway will provide one lane for left and right turns.

With the addition of the site traffic the individual intersection movements will operate at level of service “A” during the AM and PM peak hours. See Table V for the individual movement levels of service and delays.

SITE PLAN

Site Access and Circulation

The site plan was reviewed with respect to the site access and on-site circulation design. As noted previously, access to The Project will be provided via one (1) full movement driveway along Prospect Avenue.

The newly constructed parking garage will be serviced by parking aisles with a minimum width of 22' which meets the Redevelopment Plan requirement of 22'. These access aisles will allow for two-way circulation and 90 degree parking. This access configuration is expected to be sufficient to accommodate the minimal, low-turnover site traffic.

Parking

The Madison Hill II Redevelopment Plan sets forth a parking requirement of 1 parking space per unit for residential uses. For the proposed 85 units this equates to a parking requirement of 85 spaces. The Project as proposed provides 89 parking spaces and as such the Redevelopment Plan requirements are exceeded.

It is proposed to provide parking stalls with dimensions ranging from a minimum of 7 feet 4 inches x 16 feet to a maximum for a van accessible stall with dimensions of 8 feet x 18 feet. As mentioned previously, a portion of the parking spaces will be accessible via a mechanical lift system, meaning the parking spaces will effectively be stacked on top of one another. It should be noted that the Redevelopment Plan states the following regarding mechanical parking systems:

“Mechanical (stacked) parking systems are permitted to increase structured parking capacity. Parking spaces incorporated into a mechanical system shall be exempt from the dimensional requirements specified herein, but shall conform to all manufacturer specifications.”

As such, based on the above and given the low-turnover expected for the vast majority of the parking spaces, these dimensions will adequately accommodate the site.

FINDINGS & CONCLUSIONS

Findings

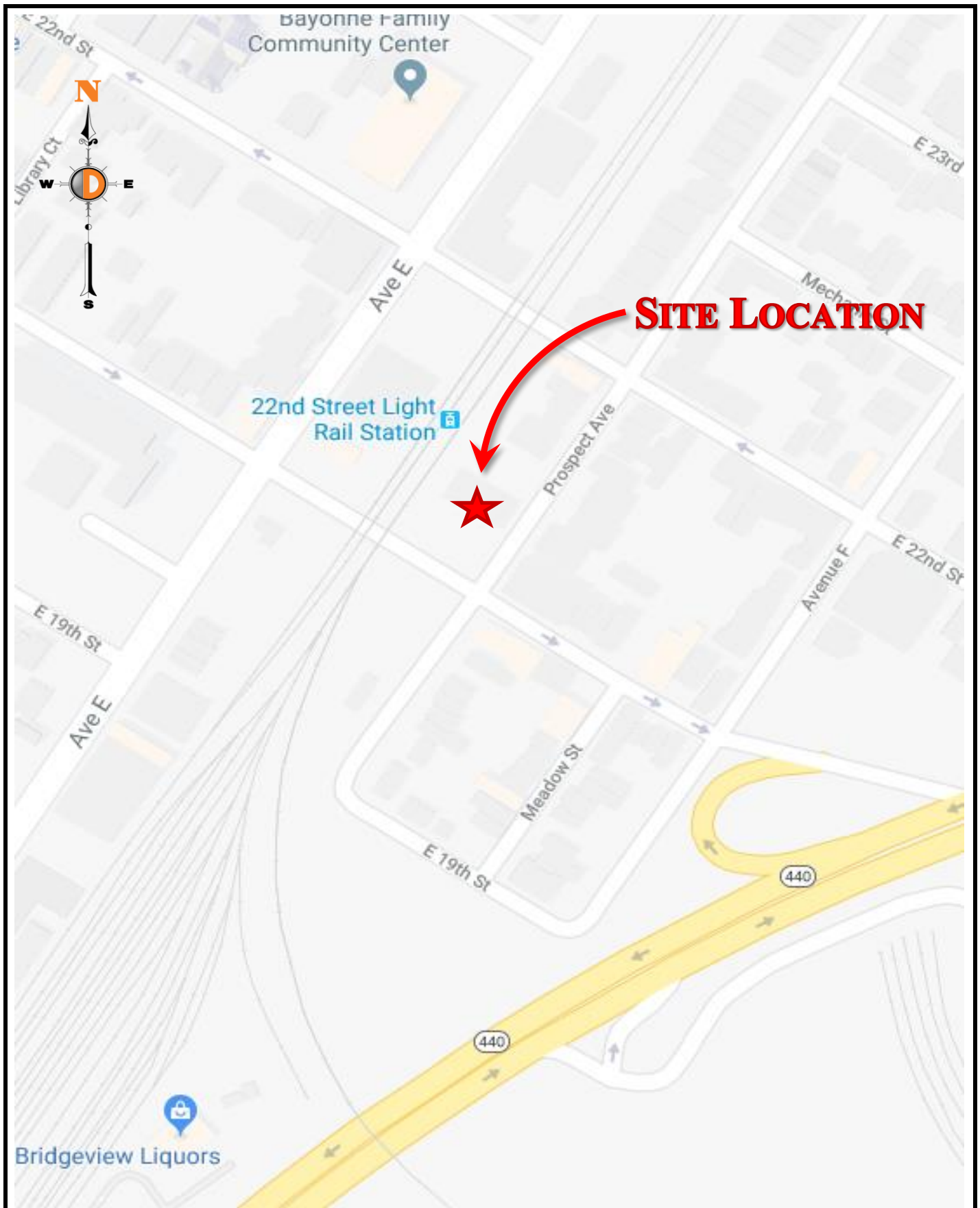
Based upon the detailed analyses as documented herein, the following findings are noted:

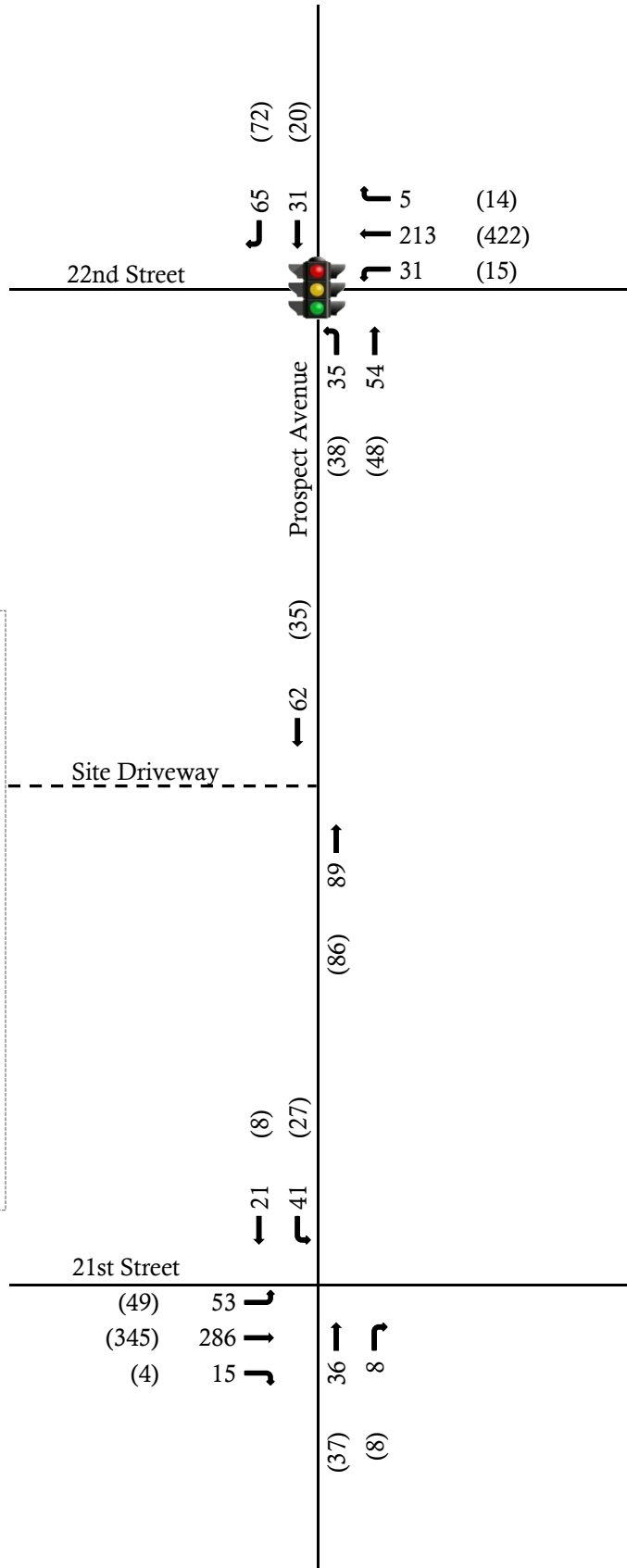
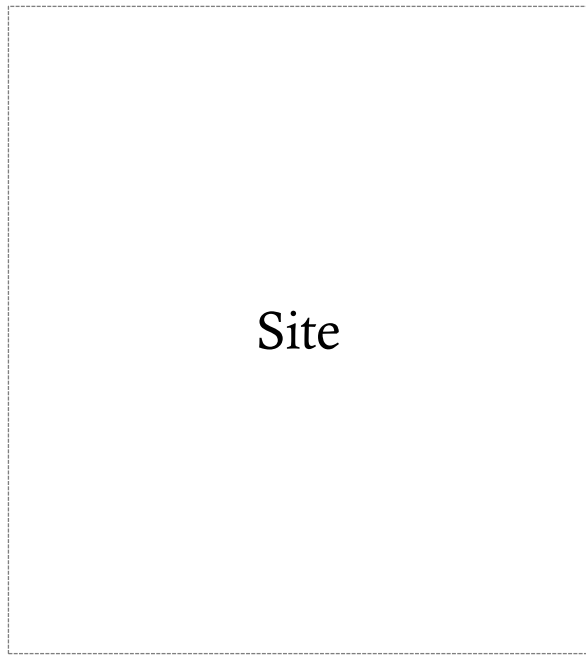
- The proposed 85 residential units will generate 8 entering trips and 21 exiting trips during the morning peak hour and 23 entering trips and 15 exiting trips during the evening peak hour. This is based on a conservative assessment of trip generation with no credit for mass transit usage.
- Access to the site will be provided via one (1) full movement driveway along Prospect Avenue.
- With the addition of the site generated traffic, the intersection of Prospect Avenue with 22nd Street will continue to operate at overall level of service “B” during the AM and PM peak hours, maintaining the no build level of service.
- With the addition of the site generated traffic, the individual intersection movements of Prospect Avenue with 21st Street will continue to operate at level of service “B” or better during the AM and PM peak hours, maintaining the no build level of service.
- With the addition of the site generated traffic, the individual intersection movements of Prospect Avenue with the site driveway will operate at level of service “A” during the AM and PM peak hours.
- As proposed, The Project’s site driveways and internal circulation have been designed to provide for safe and efficient movement of vehicles on-site.
- The proposed parking supply and design is sufficient to support the maximum anticipated demand and is consistent with past experience at similar developments.

Conclusions

Based upon our Traffic Impact Study as detailed in the body of this report, it is the professional opinion of Dynamic Traffic LLC that the adjacent street system of the City of Bayonne will not experience any significant degradation in operating conditions with the construction of The Project. The site driveways are located to provide safe and efficient access to the adjacent roadway system.

Appendix A
Traffic Volume Figures





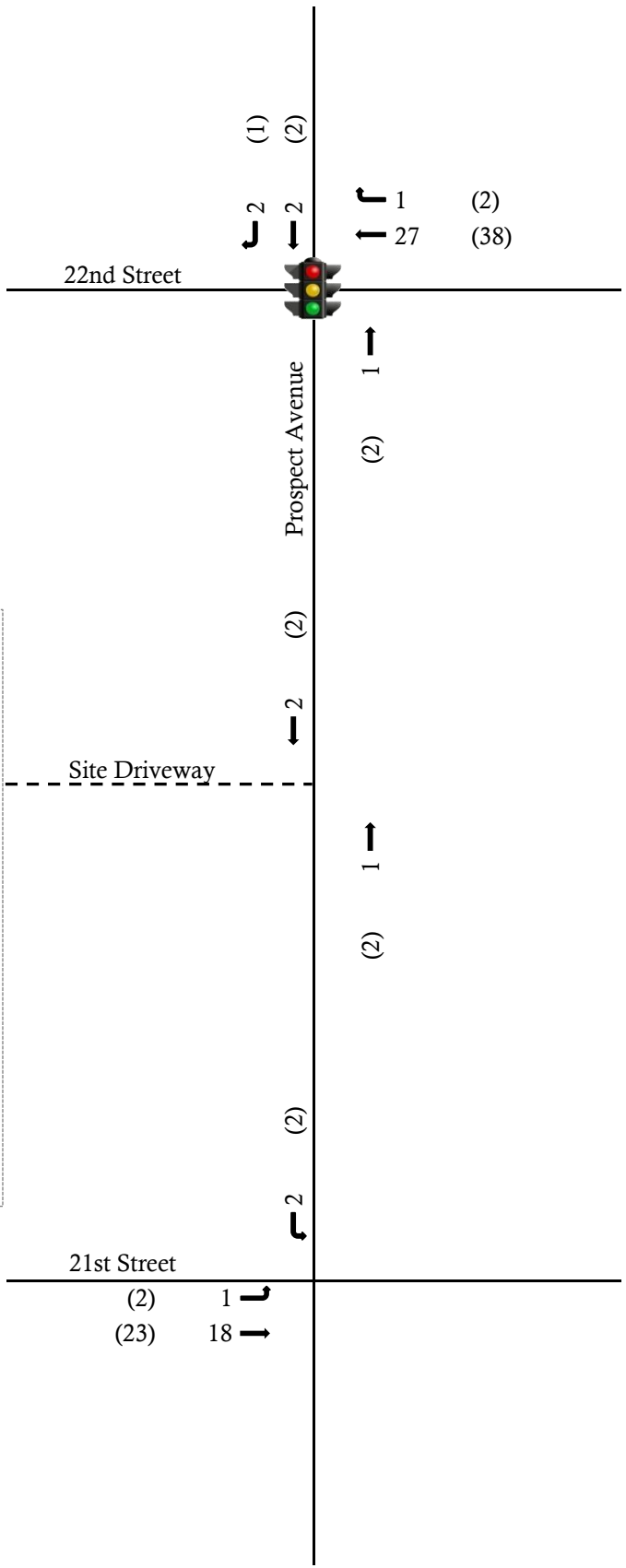
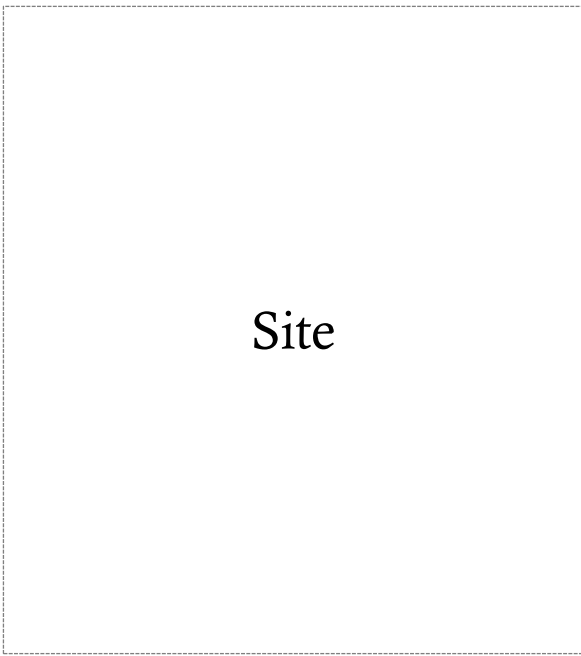
LEGEND

- Existing Roadway
- Proposed Roadway
- AM (PM)
- Signalized Intersection



Figure 2

Existing Traffic Volumes



(1) ←
 2 ←
 (2) ←
 1 ↘ (2)
 27 ↑ (38)

1 →
 (2)

(2)

← 2

Site Driveway

1 →
 (2)

(2)

← 2

21st Street

(2) 1 ↘
 (23) 18 ↑

LEGEND


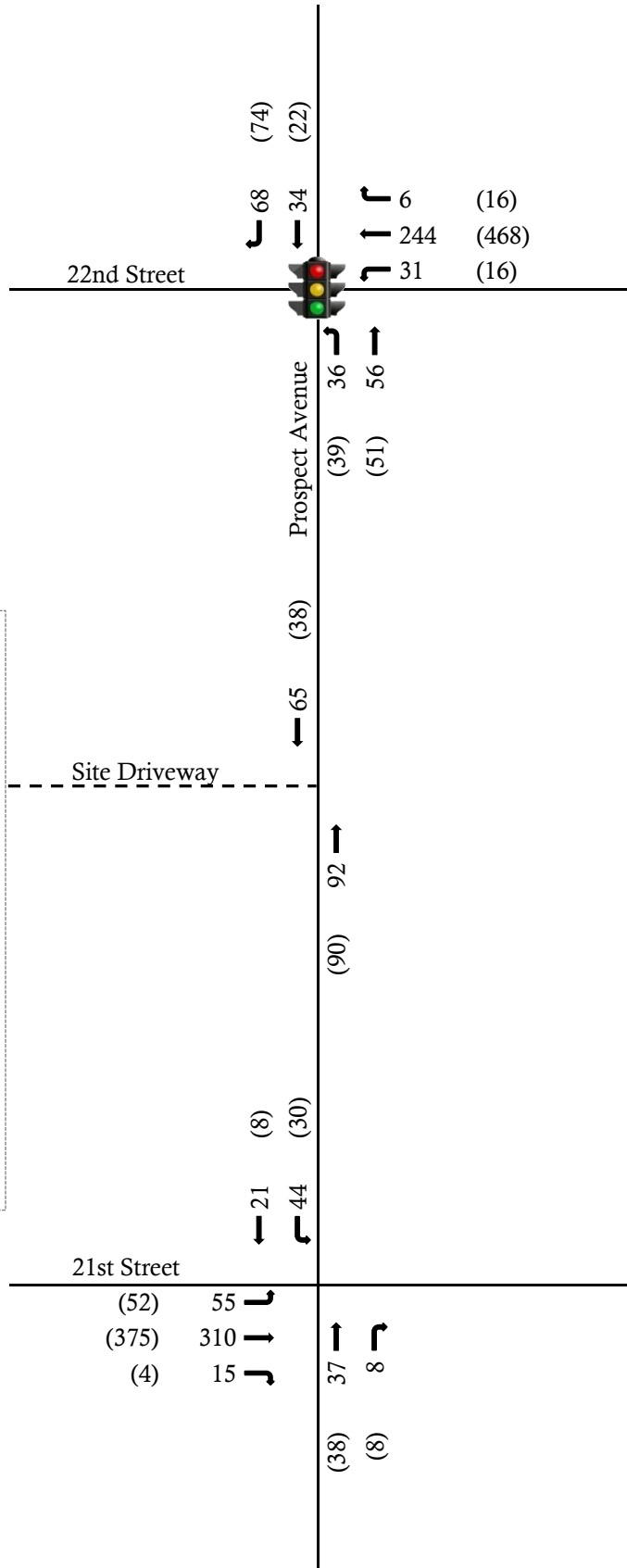
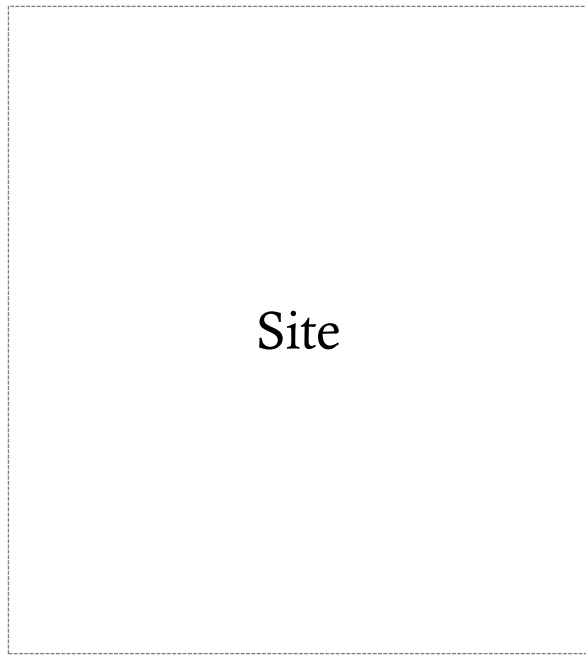
- Existing Roadway
- - - Proposed Roadway
- ← AM (PM)
-  Signalized Intersection



Figure 3

Total Adjacent Development Traffic Volumes



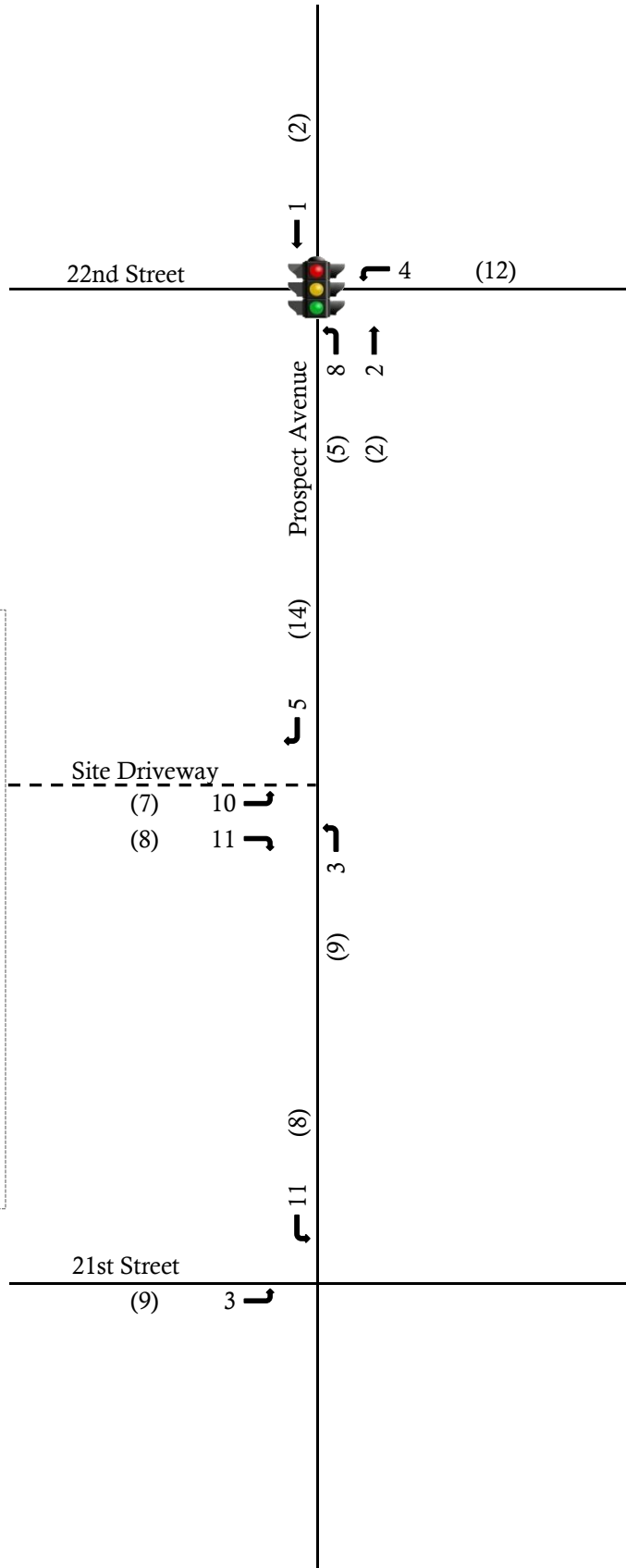
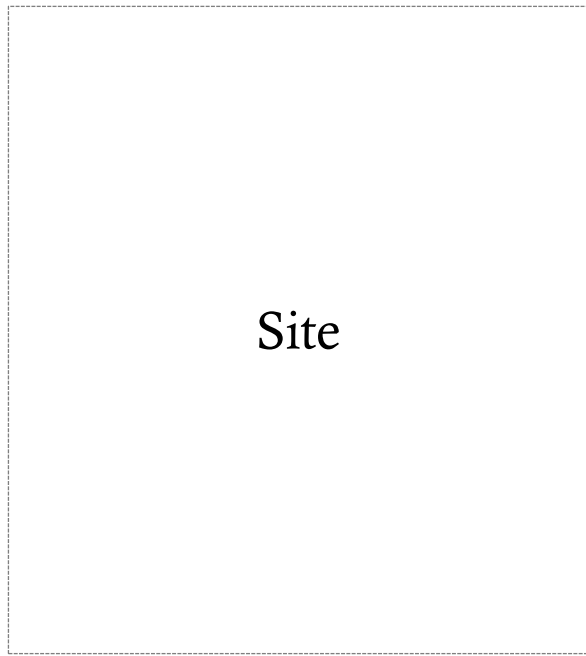
LEGEND

- Existing Roadway
- Proposed Roadway
- AM (PM)
- Signalized Intersection



Figure 4

No Build Traffic Volumes



LEGEND


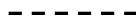


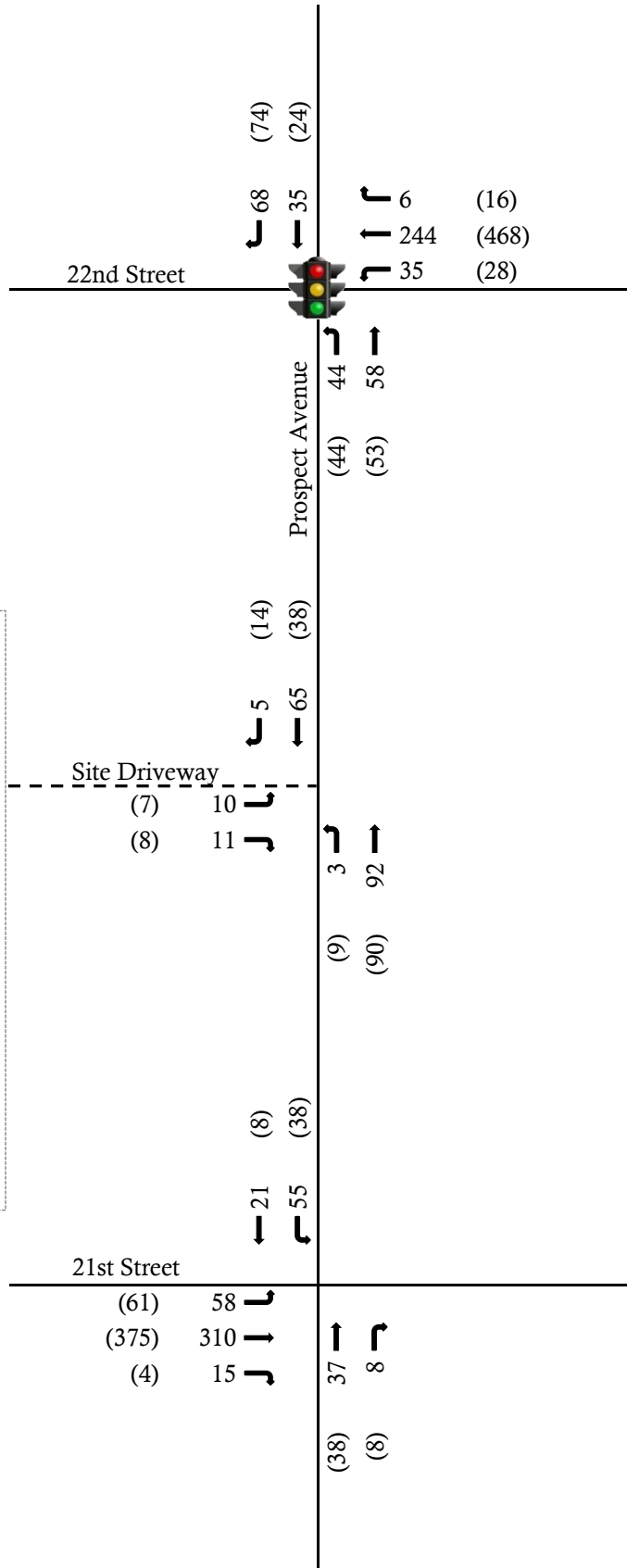
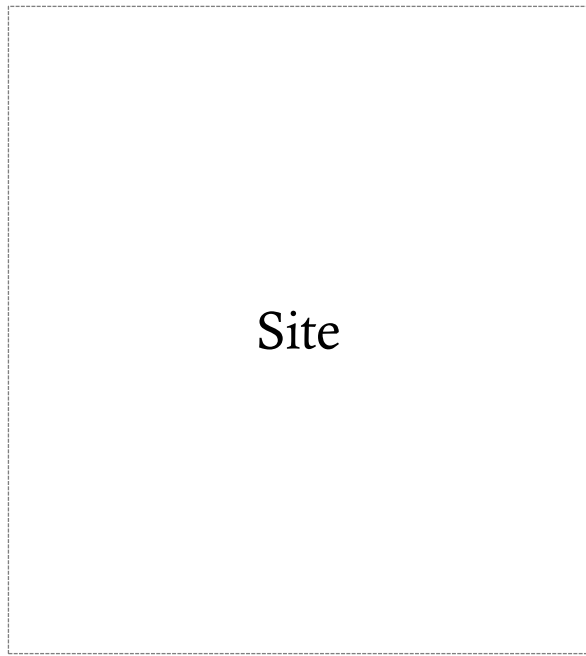
-  Existing Roadway
-  Proposed Roadway
-  AM (PM)
-  Signalized Intersection



Figure 5

Site Generated Trips



LEGEND

- Existing Roadway
- Proposed Roadway
- AM (PM)
- Signalized Intersection



Figure 6

Build Traffic Volumes

Appendix B
Traffic Counts

Dynamic Traffic, LLC

1904 Main Street, Lake Como, NJ 07719
 245 Main Street - Suite 110, Chester, NJ 07930
 732-681-0760

E/W: 22nd Street
 N/S: Prospect Avenue
 Town/County: Bayonne/Hudson
 Job #: 2542-99-001T

File Name : Prosepct Ave & 22nd St AM & PM
 Site Code : 00000000
 Start Date : 3/28/2018
 Page No : 1

Groups Printed- Cars - Single Unit Trucks - Tractor Trailers

Start Time	22nd Street Eastbound					22nd Street Westbound					Prospect Avenue Northbound					Prospect Avenue Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	0	0	27	27	3	38	1	8	50	2	3	0	13	18	0	2	8	7	17	112
07:15 AM	0	0	0	23	23	8	32	0	1	41	3	6	0	2	11	0	2	6	5	13	88
07:30 AM	0	0	0	28	28	6	39	1	2	48	2	7	0	8	17	0	3	6	6	15	108
07:45 AM	0	0	0	45	45	6	55	1	9	71	4	13	0	8	25	0	9	14	5	28	169
Total	0	0	0	123	123	23	164	3	20	210	11	29	0	31	71	0	16	34	23	73	477
08:00 AM	0	0	0	29	29	5	52	0	7	64	6	14	0	9	29	0	5	11	5	21	143
08:15 AM	0	0	0	45	45	11	54	2	3	70	11	12	0	11	34	0	10	21	4	35	184
08:30 AM	0	0	0	35	35	11	52	2	2	67	16	18	0	9	43	0	9	19	6	34	179
08:45 AM	0	0	0	33	33	4	50	5	5	64	15	19	0	5	39	0	6	20	3	29	165
Total	0	0	0	142	142	31	208	9	17	265	48	63	0	34	145	0	30	71	18	119	671
*** BREAK ***																					
04:30 PM	0	0	0	33	33	2	106	4	4	116	4	10	0	7	21	0	2	18	10	30	200
04:45 PM	0	0	0	22	22	2	110	4	2	118	2	9	0	9	20	0	2	19	12	33	193
Total	0	0	0	55	55	4	216	8	6	234	6	19	0	16	41	0	4	37	22	63	393
05:00 PM	0	0	0	25	25	7	119	0	3	129	5	17	0	2	24	0	4	16	21	41	219
05:15 PM	0	0	0	24	24	6	98	3	6	113	7	6	0	4	17	0	2	18	5	25	179
05:30 PM	0	0	0	34	34	4	114	4	6	128	11	18	0	3	32	0	7	20	12	39	233
05:45 PM	0	0	0	63	63	5	93	3	11	112	8	16	0	10	34	0	6	17	7	30	239
Total	0	0	0	146	146	22	424	10	26	482	31	57	0	19	107	0	19	71	45	135	870
06:00 PM	0	0	0	33	33	3	106	5	14	128	14	7	0	13	34	0	3	21	27	51	246
06:15 PM	0	0	0	35	35	4	109	2	9	124	5	8	0	10	23	0	6	14	4	24	206
Grand Total	0	0	0	534	534	87	1227	37	92	1443	115	183	0	123	421	0	78	248	139	465	2863
Apprch %	0	0	0	100		6	85	2.6	6.4		27.3	43.5	0	29.2		0	16.8	53.3	29.9		
Total %	0	0	0	18.7	18.7	3	42.9	1.3	3.2	50.4	4	6.4	0	4.3	14.7	0	2.7	8.7	4.9	16.2	
Cars	0	0	0	534	534	83	1211	37	92	1423	111	177	0	123	411	0	75	243	139	457	2825
% Cars	0	0	0	100	100	95.4	98.7	100	100	98.6	96.5	96.7	0	100	97.6	0	96.2	98	100	98.3	98.7
Single Unit Trucks	0	0	0	0	0	4	16	0	0	20	4	6	0	0	10	0	3	5	0	8	38
% Single Unit Trucks	0	0	0	0	0	4.6	1.3	0	0	1.4	3.5	3.3	0	0	2.4	0	3.8	2	0	1.7	1.3
Tractor Trailers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Tractor Trailers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix C
Capacity Analysis



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔			↔	
Traffic Volume (vph)	0	0	0	31	213	5	35	54	0	0	31	65
Future Volume (vph)	0	0	0	31	213	5	35	54	0	0	31	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		343			361			408			318	
Travel Time (s)		9.4			9.8			11.1			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	12%	2%	0%	3%	4%	0%	0%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	271	0	0	97	0	0	105	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (%)				65.6%	65.6%		34.4%	34.4%			34.4%	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)					53.0			25.0			25.0	
Actuated g/C Ratio					0.59			0.28			0.28	
v/c Ratio					0.25			0.22			0.20	
Control Delay					9.6			26.7			11.2	
Queue Delay					0.0			0.0			0.0	
Total Delay					9.6			26.7			11.2	
LOS					A			C			B	
Approach Delay					9.6			26.7			11.2	
Approach LOS					A			C			B	
Queue Length 50th (ft)					68			42			14	
Queue Length 95th (ft)					109			83			53	
Internal Link Dist (ft)		263			281			328			238	
Turn Bay Length (ft)												
Base Capacity (vph)					1076			438			517	
Starvation Cap Reductn					0			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.25			0.22			0.20	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	22.5 (25%), Referenced to phase 2: and 6:WBTL, Start of Green											
Natural Cycle:	90											

Control Type: Pretimed

Maximum v/c Ratio: 0.25

Intersection Signal Delay: 13.5

Intersection LOS: B

Intersection Capacity Utilization 75.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 110: Prospect Avenue & 22nd Street



Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	53	286	15	0	0	0	0	36	8	41	21	0
Future Vol, veh/h	53	286	15	0	0	0	0	36	8	41	21	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0	10	5	0
Mvmt Flow	60	321	17	0	0	0	0	40	9	46	24	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	10.9	8.2	8.8
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	15%	66%
Vol Thru, %	82%	81%	34%
Vol Right, %	18%	4%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	44	354	62
LT Vol	0	53	41
Through Vol	36	286	21
RT Vol	8	15	0
Lane Flow Rate	49	398	70
Geometry Grp	1	1	1
Degree of Util (X)	0.066	0.467	0.1
Departure Headway (Hd)	4.784	4.224	5.164
Convergence, Y/N	Yes	Yes	Yes
Cap	748	859	694
Service Time	2.814	2.224	3.194
HCM Lane V/C Ratio	0.066	0.463	0.101
HCM Control Delay	8.2	10.9	8.8
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.2	2.5	0.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Volume (vph)	0	0	0	15	422	14	38	48	0	0	20	72
Future Volume (vph)	0	0	0	15	422	14	38	48	0	0	20	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		343			361			408			318	
Travel Time (s)		9.4			9.8			11.1			8.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	6%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	480	0	0	91	0	0	98	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (%)				65.6%	65.6%		34.4%	34.4%			34.4%	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)					53.0			25.0			25.0	
Actuated g/C Ratio					0.59			0.28			0.28	
v/c Ratio					0.44			0.21			0.19	
Control Delay					11.7			26.6			9.6	
Queue Delay					0.0			0.0			0.0	
Total Delay					11.7			26.6			9.6	
LOS					B			C			A	
Approach Delay					11.7			26.6			9.6	
Approach LOS					B			C			A	
Queue Length 50th (ft)					138			40			9	
Queue Length 95th (ft)					207			79			45	
Internal Link Dist (ft)		263			281			328			238	
Turn Bay Length (ft)												
Base Capacity (vph)					1103			431			523	
Starvation Cap Reductn					0			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.44			0.21			0.19	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	22.5 (25%), Referenced to phase 2: and 6:WBTL, Start of Green											
Natural Cycle:	90											

Control Type: Pretimed
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 13.4
Intersection Capacity Utilization 75.0%
Analysis Period (min) 15

Intersection LOS: B
ICU Level of Service D

Splits and Phases: 110: Prospect Avenue & 22nd Street



Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	49	345	4	0	0	0	0	37	8	27	8	0
Future Vol, veh/h	49	345	4	0	0	0	0	37	8	27	8	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	54	379	4	0	0	0	0	41	9	30	9	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.1	8.2	8.4
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	12%	77%
Vol Thru, %	82%	87%	23%
Vol Right, %	18%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	45	398	35
LT Vol	0	49	27
Through Vol	37	345	8
RT Vol	8	4	0
Lane Flow Rate	49	437	38
Geometry Grp	1	1	1
Degree of Util (X)	0.066	0.494	0.054
Departure Headway (Hd)	4.821	4.07	5.096
Convergence, Y/N	Yes	Yes	Yes
Cap	747	875	707
Service Time	2.823	2.151	3.099
HCM Lane V/C Ratio	0.066	0.499	0.054
HCM Control Delay	8.2	11.1	8.4
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.2	2.8	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Volume (vph)	0	0	0	31	244	6	36	56	0	0	34	68
Future Volume (vph)	0	0	0	31	244	6	36	56	0	0	34	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		343			361			408			318	
Travel Time (s)		9.4			9.8			11.1			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	12%	2%	0%	3%	4%	0%	0%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	306	0	0	100	0	0	111	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (%)				65.6%	65.6%		34.4%	34.4%			34.4%	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)					53.0			25.0			25.0	
Actuated g/C Ratio					0.59			0.28			0.28	
v/c Ratio					0.28			0.23			0.21	
Control Delay					9.9			26.8			11.4	
Queue Delay					0.0			0.0			0.0	
Total Delay					9.9			26.8			11.4	
LOS					A			C			B	
Approach Delay					9.9			26.8			11.4	
Approach LOS					A			C			B	
Queue Length 50th (ft)					78			44			16	
Queue Length 95th (ft)					124			85			55	
Internal Link Dist (ft)		263			281			328			238	
Turn Bay Length (ft)												
Base Capacity (vph)					1076			436			519	
Starvation Cap Reductn					0			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.28			0.23			0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	22.5 (25%), Referenced to phase 2: and 6:WBTL, Start of Green
Natural Cycle:	90

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	55	310	15	0	0	0	0	37	8	44	21	0
Future Vol, veh/h	55	310	15	0	0	0	0	37	8	44	21	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0	10	5	0
Mvmt Flow	62	348	17	0	0	0	0	42	9	49	24	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.4	8.2	8.9
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	14%	68%
Vol Thru, %	82%	82%	32%
Vol Right, %	18%	4%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	45	380	65
LT Vol	0	55	44
Through Vol	37	310	21
RT Vol	8	15	0
Lane Flow Rate	51	427	73
Geometry Grp	1	1	1
Degree of Util (X)	0.068	0.501	0.106
Departure Headway (Hd)	4.86	4.225	5.239
Convergence, Y/N	Yes	Yes	Yes
Cap	737	854	684
Service Time	2.891	2.24	3.268
HCM Lane V/C Ratio	0.069	0.5	0.107
HCM Control Delay	8.2	11.4	8.9
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.2	2.9	0.4



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Volume (vph)	0	0	0	16	468	16	39	51	0	0	22	74
Future Volume (vph)	0	0	0	16	468	16	39	51	0	0	22	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		343			361			408			318	
Travel Time (s)		9.4			9.8			11.1			8.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	6%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	532	0	0	95	0	0	102	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (%)				65.6%	65.6%		34.4%	34.4%			34.4%	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)					53.0			25.0			25.0	
Actuated g/C Ratio					0.59			0.28			0.28	
v/c Ratio					0.48			0.22			0.19	
Control Delay					12.4			26.7			9.8	
Queue Delay					0.0			0.0			0.0	
Total Delay					12.4			26.7			9.8	
LOS					B			C			A	
Approach Delay					12.4			26.7			9.8	
Approach LOS					B			C			A	
Queue Length 50th (ft)					159			41			10	
Queue Length 95th (ft)					237			81			47	
Internal Link Dist (ft)		263			281			328			238	
Turn Bay Length (ft)												
Base Capacity (vph)					1103			431			525	
Starvation Cap Reductn					0			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.48			0.22			0.19	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	22.5 (25%), Referenced to phase 2: and 6:WBTL, Start of Green											
Natural Cycle:	90											

Control Type: Pretimed	
Maximum v/c Ratio: 0.48	
Intersection Signal Delay: 13.9	Intersection LOS: B
Intersection Capacity Utilization 75.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 110: Prospect Avenue & 22nd Street



Intersection	
Intersection Delay, s/veh	11.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	52	375	4	0	0	0	0	38	8	30	8	0
Future Vol, veh/h	52	375	4	0	0	0	0	38	8	30	8	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	57	412	4	0	0	0	0	42	9	33	9	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.9	8.3	8.5
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	12%	79%
Vol Thru, %	83%	87%	21%
Vol Right, %	17%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	46	431	38
LT Vol	0	52	30
Through Vol	38	375	8
RT Vol	8	4	0
Lane Flow Rate	51	474	42
Geometry Grp	1	1	1
Degree of Util (X)	0.069	0.537	0.06
Departure Headway (Hd)	4.914	4.078	5.188
Convergence, Y/N	Yes	Yes	Yes
Cap	733	871	694
Service Time	2.917	2.168	3.192
HCM Lane V/C Ratio	0.07	0.544	0.061
HCM Control Delay	8.3	11.9	8.5
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.2	3.3	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Volume (vph)	0	0	0	35	244	6	44	58	0	0	35	68
Future Volume (vph)	0	0	0	35	244	6	44	58	0	0	35	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		343			361			228			318	
Travel Time (s)		9.4			9.8			6.2			8.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	12%	2%	0%	3%	4%	0%	0%	3%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	310	0	0	111	0	0	112	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (%)				65.6%	65.6%		34.4%	34.4%			34.4%	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)					53.0			25.0			25.0	
Actuated g/C Ratio					0.59			0.28			0.28	
v/c Ratio					0.29			0.26			0.22	
Control Delay					10.0			27.4			11.5	
Queue Delay					0.0			0.0			0.0	
Total Delay					10.0			27.4			11.5	
LOS					A			C			B	
Approach Delay					10.0			27.4			11.5	
Approach LOS					A			C			B	
Queue Length 50th (ft)					80			49			16	
Queue Length 95th (ft)					126			94			56	
Internal Link Dist (ft)		263			281			148			238	
Turn Bay Length (ft)												
Base Capacity (vph)					1075			425			520	
Starvation Cap Reductn					0			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.29			0.26			0.22	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	22.5 (25%), Referenced to phase 2: and 6:WBTL, Start of Green											
Natural Cycle:	90											

Control Type: Pretimed

Maximum v/c Ratio: 0.29

Intersection Signal Delay: 13.9

Intersection LOS: B

Intersection Capacity Utilization 75.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 110: Prospect Avenue & 22nd Street



Intersection

Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	58	310	15	0	0	0	0	37	8	55	21	0
Future Vol, veh/h	58	310	15	0	0	0	0	37	8	55	21	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0	10	5	0
Mvmt Flow	65	348	17	0	0	0	0	42	9	62	24	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.6	8.3	9
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	15%	72%
Vol Thru, %	82%	81%	28%
Vol Right, %	18%	4%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	45	383	76
LT Vol	0	58	55
Through Vol	37	310	21
RT Vol	8	15	0
Lane Flow Rate	51	430	85
Geometry Grp	1	1	1
Degree of Util (X)	0.069	0.509	0.125
Departure Headway (Hd)	4.893	4.261	5.262
Convergence, Y/N	Yes	Yes	Yes
Cap	732	848	681
Service Time	2.927	2.28	3.294
HCM Lane V/C Ratio	0.07	0.507	0.125
HCM Control Delay	8.3	11.6	9
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.2	2.9	0.4

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	11	3	92	65	5
Future Vol, veh/h	10	11	3	92	65	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	12	3	100	71	5
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	180	74	76	0	-	0
Stage 1	74	-	-	-	-	-
Stage 2	106	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	810	988	1523	-	-	-
Stage 1	949	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	808	988	1523	-	-	-
Mov Cap-2 Maneuver	808	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Approach	EB		NB		SB	
HCM Control Delay, s	9.1		0.2		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1523	-	893	-	-	
HCM Lane V/C Ratio	0.002	-	0.026	-	-	
HCM Control Delay (s)	7.4	0	9.1	-	-	
HCM Lane LOS	A	A	A	-	-	
HCM 95th %tile Q(veh)	0	-	0.1	-	-	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕			↕			↕	
Traffic Volume (vph)	0	0	0	28	468	16	44	53	0	0	24	74
Future Volume (vph)	0	0	0	28	468	16	44	53	0	0	24	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		343			361			228			318	
Travel Time (s)		9.4			9.8			6.2			8.7	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	6%	0%	0%	0%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	545	0	0	103	0	0	105	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					6			8				4
Permitted Phases				6			8					
Minimum Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (s)				59.0	59.0		31.0	31.0			31.0	
Total Split (%)				65.6%	65.6%		34.4%	34.4%			34.4%	
Yellow Time (s)				4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)				2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)					0.0			0.0			0.0	
Total Lost Time (s)					6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)					53.0			25.0			25.0	
Actuated g/C Ratio					0.59			0.28			0.28	
v/c Ratio					0.49			0.24			0.20	
Control Delay					12.6			27.1			10.0	
Queue Delay					0.0			0.0			0.0	
Total Delay					12.6			27.1			10.0	
LOS					B			C			B	
Approach Delay					12.6			27.1			10.0	
Approach LOS					B			C			B	
Queue Length 50th (ft)					164			45			11	
Queue Length 95th (ft)					245			88			49	
Internal Link Dist (ft)		263			281			148			238	
Turn Bay Length (ft)												
Base Capacity (vph)					1102			425			527	
Starvation Cap Reductn					0			0			0	
Spillback Cap Reductn					0			0			0	
Storage Cap Reductn					0			0			0	
Reduced v/c Ratio					0.49			0.24			0.20	
Intersection Summary												
Area Type:	Other											
Cycle Length:	90											
Actuated Cycle Length:	90											
Offset:	22.5 (25%), Referenced to phase 2: and 6:WBTL, Start of Green											
Natural Cycle:	90											

Control Type: Pretimed

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 14.2

Intersection LOS: B

Intersection Capacity Utilization 75.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 110: Prospect Avenue & 22nd Street



Intersection

Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↔			↕	
Traffic Vol, veh/h	61	375	4	0	0	0	0	38	8	38	8	0
Future Vol, veh/h	61	375	4	0	0	0	0	38	8	38	8	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	67	412	4	0	0	0	0	42	9	42	9	0
Number of Lanes	0	1	0	0	0	0	0	1	0	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.5	8.4	8.7
HCM LOS	B	A	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	0%	14%	83%
Vol Thru, %	83%	85%	17%
Vol Right, %	17%	1%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	46	440	46
LT Vol	0	61	38
Through Vol	38	375	8
RT Vol	8	4	0
Lane Flow Rate	51	484	51
Geometry Grp	1	1	1
Degree of Util (X)	0.07	0.564	0.073
Departure Headway (Hd)	4.954	4.198	5.222
Convergence, Y/N	Yes	Yes	Yes
Cap	723	865	686
Service Time	2.985	2.198	3.255
HCM Lane V/C Ratio	0.071	0.56	0.074
HCM Control Delay	8.4	12.5	8.7
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.2	3.6	0.2

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	7	8	9	90	38	14
Future Vol, veh/h	7	8	9	90	38	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	9	10	98	41	15

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	167	49	56	0	0
Stage 1	49	-	-	-	-
Stage 2	118	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-
Pot Cap-1 Maneuver	823	1020	1549	-	-
Stage 1	973	-	-	-	-
Stage 2	907	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	817	1020	1549	-	-
Mov Cap-2 Maneuver	817	-	-	-	-
Stage 1	966	-	-	-	-
Stage 2	907	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1549	-	914	-	-
HCM Lane V/C Ratio	0.006	-	0.018	-	-
HCM Control Delay (s)	7.3	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-